



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,616	02/16/2006	Toshihiko Okamoto	Q93069	9359
23373	7590	08/27/2009	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			OJURONGBE, OLATUNDE S	
ART UNIT	PAPER NUMBER			
		1796		
MAIL DATE	DELIVERY MODE			
08/27/2009	PAPER			

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/568,616	Applicant(s) OKAMOTO ET AL.
	Examiner OLATUNDE S. OJURONGBE	Art Unit 1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 26 May 2009.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1,4-7,12 and 15-24 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1, 4-7, 12 and 15-24 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/96/08)
Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____

5) Notice of Informal Patent Application

6) Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/25/2009 and subsequent amendment to the claims filed on 05/26/2009 has been entered.

Claim Objections

2. Claims 1,4, 17-19 and 21-24 are objected to because of the following informalities:

Claim 1 recites "an organic polymer (A) which has on average 1.1 to 5 groups per one molecule thereof each represented by the general formula (1)". The underlined "each" is redundant and should be replaced with "of the group". The examiner notes similar errors in claims 4, 17-19, and 21-23.

There are two claim 19 in the claim listing. For the purpose of this office action, the second claim 19 is labeled claim 20.

Claim 24 recites "The curable composition according to claim 19." This should be changed to "The curable composition according to claim 20."

Appropriate corrections are required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. **Claims 1, 5-7,16, 18, 20 and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Fukunaga et al (US 6,410,640)** as evidenced by **Singh (US 4,960,844)**.

Regarding **claims 1,18 and 20**, Fukunaga et al teaches a curable resin composition which contains an organic polymer (a) having at least one reactive silicon group per molecule, and a stannous curing catalyst (d) (col.2, lines 46-51). Examples of the stannous curing catalyst include stannous versatate (col.10, lines 29-31). Fukunaga et al further teaches that the reactive silicon group contained in the polymer (a) is a group which has a hydroxyl group, or a hydrolyzable group bonded to a silicon atom and can be crosslinked via the formation of a siloxane bond (col.4, lines 41-45), and that particular

examples of component (a) include those disclosed in a limited list of patents, which include US 4,960,844 (col.6, lines 21-25).

US 4,960,844 teaches a liquid polymer having the formula (Abstract); since the value of p in the formula of US 4,960,844 is 2 to 4, the number of the $NH-C=O$ group is from 4 to 8. The polymer of US 4,960,844 having a value of 2 to 4 teaches the organic polymer (A) of the invention with sufficient specificity to constitute anticipation under the statute.

Though Fukunaga et al does not explicitly teach a curable composition comprising (A) and (B) of the instant claim, since Fukunaga et al teaches stannous versatate among a limited list of tin catalyst suitable for the composition of the invention, motivated by the desire to generate a composition with an optimal curing rate, it would have been obvious to one of ordinary skill in the art to have formed various versions of the composition of Fukunaga et al, including those comprising stannous versatate.

For claim 20, the examiner notes that the statement "wherein the organic polymer (A) is produced by the following production methods (a) or (b)" is a product-by-process statement. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Regarding **claim 5**, Fukunaga et al further exemplifies a composition comprising 3 parts by weight stannous octylate per 100 parts by weight of the curable organic polymer of the invention (col.13, lines 47-67). Fukunaga et al does not explicitly teach the curable composition comprising (B) in an amount of the instant claim. Motivated by the desire to generate a composition with an optimal curing rate, it would have been obvious to one of ordinary skill in the art to have formed various versions of the exemplified composition of Fukunaga et al, including those wherein stannous versatate is substituted for part of the stannous octylate catalyst. Moreover, it has been established that it is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose, the idea of combining them flows logically from their having been individually taught in the prior art. *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). Furthermore, it would have been obvious to one of ordinary skill in the art to have combined the stannous octylate and the stannous versatate of Fukunaga et al in a 1:1 ratio. When faced with a mixture, one of ordinary skill in the art would be motivated by common sense to select a 1:1 ratio. Case law holds that having established that this knowledge was in the art, the examiner could then properly rely on a conclusion of obviousness, from common knowledge and common sense of the person of ordinary skill in the art within any specific hint or suggestion in a particular reference. *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969).

The stannous versatate of the modified composition of Fukunaga et al meets the limitations of the instant claim.

Regarding **claims 6 and 16**, Fukunaga et al further teaches that it is preferable to use an amine compound together with the curing catalyst (col.10, lines 33-35).

Regarding **claim 7**, Fukunaga et al further exemplifies a composition comprising 0.5 parts by weight of laurylamine per 100 parts by weight of the curable organic polymer (col.13, lines 64-65).

Regarding **claim 24**, Fukunaga et al further teaches that the R^4 of the polymer of the invention is an alkylene of from 3 to 6 carbon atoms and that X is sulfur or $-S-R^5-S-$, wherein R^5 is preferably alkylene of from 4 to 12 carbon atoms (see Singh, col.2, lines 10-35). The combination of R^4 and X of Fukunaga et al meets the limitations of R^5 of the instant claim.

6. **Claims 17 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukunaga et al (US 6,410,640) as evidenced by Singh (US 4,960,844), in view of Emmerling et al (US 5,554,709).

Regarding **claims 17 and 19**, Fukunaga et al teaches all the claim limitations as set forth above. Fukunaga et al does not teach the curable composition wherein the organic polymer (A) has on average the number of groups of the general formula (1) per one molecule thereof of the instant claim.

Emmerling et al teaches a moisture-curing alkoxy silane-terminated polyurethanes used as sealing and/or adhesive compositions (abstract). Emmerling et al further teaches that the polyurethane of the invention is obtained by reacting NCO-terminated polyurethane prepolymers with alkoxy silane (col.2, lines 10-51). Emmerling et al further teaches that the lower the NCO functionality of the NCO-terminated prepolymers, the softer the cured silanized end product of the invention (col.4, lines 53-60). Since the NCO functionality of the prepolymer forms the NH-C=O group of the product, it can be inferred that the lower the number of NH-C=O group of the product, the softer the cured end product.

Since the composition of Emmerling et al and Fukunaga et al are similar, and both inventions of Emmerling et al and Fukunaga et al are in the same field of endeavor-sealants/adhesives-motivated by the desire to form a composition with optimal softness, it would have been obvious to one of ordinary skill in the art to have formed various versions of the composition of Fukunaga et al, including those wherein the organic polymer has on average 1.1 to 2 or 1.5 to 2 groups of NH-C=O per one molecule thereof of the instant claim. Moreover, it has been held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.

7. **Claims 4, 12, 15 and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukunaga et al (US 6,410,640), as evidenced by **Singh (US 4,960,844)**, in view of

Suzuki et al (EP 0538881), in further view of **Okamoto et al (WO 03/011978**, see English Language equivalent **US 7,115,695**).

Regarding **claims 4 and 22**, Fukunaga et al teaches a curable resin composition which contains an organic polymer (a) having at least one reactive silicon group per molecule, and a stannous curing catalyst (d) (col.2, lines 46-51). Fukunaga et al further teaches that the reactive silicon group contained in the polymer (a) is a group which has a hydroxyl group, or a hydrolyzable group bonded to a silicon atom and can be crosslinked via the formation of a siloxane bond (col.4, lines 41-45) and that particular examples of component (a) include those disclosed in a limited list of patents which include US 4,960,844 (col.6, lines 21-25).

US 4,960,844 teaches a liquid polymer having the formula (Abstract). Since the value of p in the formula of US 4,960,844 is 2 to 4, the number of the NH-C=O group in the polymer is from 4 to 8. The polymer of US 4,960,844 having a value of p of 2 to 4, teaches the organic polymer (A) of the invention with sufficient specificity to constitute anticipation under the statute.

Fukunaga et al does not teach the curable composition in which the component (B) is a carboxylic acid of the instant claim.

Suzuki et al teaches that organometallic compounds containing tin is expensive and highly toxic. Suzuki et al further teaches the use of carboxylic acid in place of organometallic compounds in curing a polymer having at least one silicon atom-containing group to the silicon atom of which a hydroxyl group or a hydrolysable group is attached (page 2, lines 9-19).

Since the composition of Suzuki et al is similar to that of Fukunaga et al, and both inventions of Suzuki et al and Fukunaga et al are in the same field of endeavor-sealant/adhesive-motivated by the advantages of using carboxylic acid, as taught by Suzuki et al, it would have been obvious to one of ordinary skill in the art to have used carboxylic acid in curing the composition of Fukunaga et al.

Modified Fukunaga et al does not teach the carboxylic acid of the instant claim.

Okamoto et al teaches a curable composition comprising an organic polymer having at least one silicon-containing group which has a hydroxyl, or hydrolyzable group bonded to the silicon atom and which is crosslinkable by forming siloxane bonds, and a specific metal salt of a carboxylic acid (Abstract, lines 1-5). Okamoto et al further teaches that in view of availability, cheap price and good compatibility with the organic polymer, the carboxylic acid from which the metal carboxylate is formed is preferably neodecanoic acid, amongst a limited list of carboxylic acids (col.15, lines 61-65), and that in view of its rapid curing rate, the carboxylic acid is more preferably carboxylic acid wherein a carbon atom adjacent to a carbonyl group is quaternary carbon (col.16, lines 1-8).

Since the composition of Okamoto et al is similar to that of modified Fukunaga et al, and both inventions of Okamoto et al and modified Fukunaga et al are in the same field of endeavor-sealant/adhesive-motivated by the advantages of carboxylic acid wherein a carbon atom adjacent to a carbonyl group is quaternary carbon as taught by Okamoto et al, it would have been obvious to one of ordinary skill in the art to have used the carboxylic acid wherein a carbon atom adjacent to a carbonyl group is quaternary

carbon of Okamoto et al, in curing the composition of the invention of modified Fukunaga et al.

Regarding **claims 12 and 15**, modified Fukunaga et al further teaches the composition of the invention containing a primary amine (Suzuki et al, page 5, lines 6-7). Modified Fukunaga et al further teaches a total amount of the carboxyl group-containing compound (carboxylic acid) and the primary amine of the invention ranging from 0.01 to 20 parts by weight, per 100 parts by weight of the base polymer (Suzuki et al, page 5, lines 45-47), with the ratio of the carboxyl group-containing compound (carboxylic acid) to the primary amine ranging from 0.1:1 to 20:1. (Suzuki et al, page 6, lines 1-4).

8. **Claims 21 and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukunaga et al (US 6,410,640), as evidenced by Singh (US 4,960,844), in view of Suzuki et al (EP 0538881), in further view of Okamoto et al (WO 03/011978, see English Language equivalent US 7,115,695), in further view of Emmerling et al (US 5,554,709).

Regarding **claims 21 and 23**, modified Fukunaga et al teaches all the claim limitations as set forth above. Modified Fukunaga et al does not teach the curable composition wherein the organic polymer (A) has on average the number of groups of the general formula (1) per one molecule thereof of the instant claim.

Emmerling et al teaches a moisture-curing alkoxy silane-terminated polyurethanes used as sealing and/or adhesive compositions (abstract). Emmerling et al further teaches

that the polyurethane of the invention is obtained by reacting NCO-terminated polyurethane prepolymers with alkoxy silane (col.2, lines 10-51). Emmerling et al further teaches that the lower the NCO functionality of the NCO-terminated prepolymers, the softer the cured silanized end product of the invention (col.4, lines 53-60). Since the NCO functionality of the prepolymer forms the NH-C=O group of the product, it can be inferred that the lower the number of NH-C=O group of the product, the softer the cured end product.

Since the composition of Emmerling et al and modified Fukunaga et al are similar, and both inventions are in the same field of endeavor-sealants/adhesives-motivated by the desire to form a composition with optimal softness, it would have been obvious to one of ordinary skill in the art to have formed various versions of the composition of modified Fukunaga et al, including those wherein the organic polymer has on average 1.1 to 2, or 1.5 to 2 NH-C=O groups per one molecule thereof of the instant claim. Moreover, it has been held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.

Response to Arguments

9. Applicant's arguments filed on 05/26/2009 have been fully considered but they are not persuasive.

In response to applicant's argument that Fukunaga et al (as evidenced by Singh) does not teach or suggest that the curable composition provides a rapid curing rate and excellent resistance, the fact that applicant has recognized another advantage which

would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

In response to applicant's argument that the rapid curing rate and excellent heat resistance of the curable composition of the instant application is an unexpected effect, the examiner notes that whether the unexpected results are the result of unexpectedly improved results or a property not taught by the prior art, the objective evidence of nonobviousness must be commensurate in scope with the claims which the evidence is offered to support. In other words, the showing of unexpected results must be reviewed to see if the results occur over the entire claimed range. *In re Clemens*, 622 F.2d 1029, 1036, 206 USPQ 289, 296 (CCPA 1980). In this case, the evidence-examples of the present specification with the 132 declaration-provided by the applicant is not of commensurate in scope with the claims it is offered to support. For instance, the polymers bearing the -NR—C(=O)- groups tested in the evidence is far more limited than the broader organic polymer (A) of the instant claims. Furthermore, the catalysts, and the amounts of catalysts tested in the evidence are far more limiting than the tin carboxylate (B), and the amount of tin carboxylate (B) of the instant claims. Moreover, the compositions of the evidence contain high amounts of fillers and plasticizer, which are not present in the composition of the instant claims.

In response to the applicant's argument that the new claim 20 recites the curable composition produced by the specific production methods (a) or (b), the examiner notes that this is a product-by-process claim.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In response to applicant's argument that Okamoto et al does not use any free carboxylic acid that has a quaternary carbon atom adjacent to the carbonyl group, one cannot argue references individually where rejections are based on combination of references. Furthermore, Okamoto et al teaches the advantages of carboxylic acids having quaternary carbon atom adjacent to the carbonyl group, and one of ordinary skill in the art would have envisaged these advantages in the derivatives of the carboxylic acids, as well as the free carboxylic acids of Okamoto et al.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to OLATUNDE S. OJURONGBE whose telephone number is (571)270-3876. The examiner can normally be reached on Monday-Thursday, 7.15am-4.45pm, EST time, Alt Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571)272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

O.S.O.

/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796